EXTRACTED FROM:

# Guidelines for Archaeological Permit Holders in Alberta

ARCHAEOLOGICAL SURVEY OF ALBERTA
HISTORICAL RESOURCES DIVISION
1989

Alberta
CULTURE AND MULTICULTURALISM

## 4.0 ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT STUDIES

An archaeological resource impact assessment is intended to determine the impact potential of a development project on archaeological sites and make recommendations to mitigate anticipated impacts. This assessment almost always requires subsurface excavation and, hence, necessitates an historical resources mitigative research permit. Although the focus of an archaeological resources impact assessment is the archaeological resource base, the permit holder is obligated to record all historical resources, including standing structures and palaeontological remains. The degree to which these resources are assessed is limited, however, and will be subsequently reviewed. If palaeontological resource and/or historical structure assessments are specifically required of the development proponent, the appropriate guidelines for field conduct and reporting should be consulted.

### 4.1 ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT PHILOSOPHY

The Historical Resources Act, in recognizing the non-renewable nature of historical resources, provides the framework for historical resources impact assessments and mitigative studies (Section 33[1]). It follows that, where the Minister is of the opinion that any operation or activity which may be undertaken by any person will, or is likely to, result in the alteration, damage or destruction of historical resources, the Minister may order that person to:

1. carry out an assessment to determine the effects of the proposed operation or activity on historical resources in the area where the operation or activity will be carried out;
2. prepare and submit to the Minister, in accordance with the order, a report containing the assessment of the effects of the proposed operation or activity referred to above; and
3. undertake all salvage, preservation or protective measures or take any other action which the Minister considers necessary.

The requirement for an historical resources impact assessment is imposed upon a development proponent by authority of the Minister as delegated to the Assistant Deputy Minister, Historical Resources

Division, Alberta Culture and Multiculturalism. The impact assessment requirement is governed by the guidelines incorporated herein, unless otherwise stated to include historical structures, palaeontological resources or natural resources. Upon submission of an acceptable impact assessment report, the Assistant Deputy Minister may express no further concerns for the project in question or may prescribe further mitigative action.

Alberta Culture and Multiculturalism, in its enforcement of the Historical Resources Act, recognizes two critical stages. These are the impact assessment phase and the mitigation phase. Official responses to a proponent will be made prior to and following successful completion of each. If the impact assessment requirements as defined here are not met, an assessment will be rejected either in whole or in part, by the Archaeological Survey of Alberta. Total project clearance will not be recommended until the outstanding obligations are met. This does not imply that the Archaeological Survey of Alberta rejects the concept of "multi-staging" (overview, inventory, site assessment, mitigation) and leaves such arrangements as a matter of concern between the archaeologist and his/her client. However, only under exceptional circumstances will the Archaeological Survey of Alberta recommend to the Assistant Deputy Minister more than two official requirement responses.

## 4.2 PRE-FIELD RESEARCH FOR ARCHAEOLOGICAL RESOURCES IMPACT ASSESSMENTS

Pre-field research is an essential component of every archaeological resources impact assessment. At the most elementary level of inquiry, it is mandatory to determine the presence of previously reported archaeological or historical sites within the development zone. At the broadest level, the archaeologist is expected to have an understanding of regional prehistory and history prior to commencing field operations.

A variety of sources are available for consultation in the pre-field research phase of a project. These include the following:

1. site record files of the Archaeological Survey of Alberta and Historic Sites Service;
2. previous permit reports housed in the Historical Resources Division Library, which are on microfiche in major Alberta archaeological

research centres (Archaeological Survey of Canada, Ottawa, Galt Museum, Lethibridge; University of Calgary);

3. theses, monographs and various published reports on the prehistory or the history of the region in question (the Historical Resources Division Library and the Alberta Provincial Archives have relatively comprehensive holdings of these sources);
4. field notes and ancillary data of previous resource management and research projects in the region (these materials are stored by the Provincial Museum of Alberta and inquiries may be directed to the Archaeological Survey of Alberta or Provincial Museum of Alberta);
5. existing archaeological collections housed at the Provincial Museum of Alberta and various other museums throughout Alberta; and
6. various archival sources including maps, early surveyor notes, period photographs, fur trade journals and diaries stored at the Alberta Provincial Archives, the archives of the universities of Alberta and Calgary, and the Glenbow Institute.

Of the preceding, only the pre-field file search of the archaeological and historical sites inventories is a condition of the permit authorization.

## 4.3 RESEARCH DESIGN

The vast majority of archaeological resources impact assessment projects will be immediate responses to an Alberta Culture and Multiculturalism regulatory requirement. The archaeologist may not have a long period of time to develop an intricate research design, nor is he/she expected to do so. The Master Plan for Prehistoric and Historic Resources specifies significant research themes, however, and these as well as provincially oriented research objectives expressed by the Archaeological Survey of Alberta can and should be addressed. When these themes or objectives are applied, the archaeologist should measure resource significance in terms of site potential to contribute to problem solution.

In larger scale impact assessment programmes (e.g., reservoir impoundments, oil sands leases, etc.), a research design is essential to successful programme completion. Some of these larger scale projects

will have been preceded by an overview study (see Section 3.0) or other research from which the principal considerations of the research design will be drafted. In presenting a research design to the Archaeological Survey of Alberta for a permit application review, the following topics are to be addressed:

1. a problem statement in which realistic, substantive problems are posed for the kind of data base anticipated to result from the study (these problems will dictate data recovery techniques);
2. analytic procedures as they pertain to site discovery, artifact recovery and all forms of archaeological analysis to be performed (these procedures must be justified in light of the problems to be investigated);
3. administrative considerations which manage the programme through logistics and personnel; and
4. a reporting format in which a summary of the reporting procedure is laid out.

Regardless of project size, all archaeological resource impact assessment projects must give careful consideration to the methodologies to be employed and their adequacy for meeting the obligations of the permit holder and development proponent. These methodologies must be clearly documented on the application for a permit.

## 4.4 SITE INVENTORY APPROACHES

The field inventory of prehistoric and historical sites is the single most crucial stage of the archaeological impact assessment. The Archaeological Survey of Alberta is concerned with the intensity of field coverage, the methodology of site discovery and the allocation of personnel employed in archaeological site inventory. In addition, although historical resources impact assessments can require the archaeologist to actively seek out palaeontological resources or historical structures, they must be recorded when encountered even when the focus of the field research is largely archaeological.

### 4.4.1 Judgemental Survey Techniques

On most occasions and under normal circumstances, the archaeologist

undertaking an impact assessment will employ survey techniques that are judgemental in nature. On the basis of experience, knowledge of the area and, in some instances, a developed research design, the archaeologist will make decisions as to where sites should be located and search accordingly. Although 100% intensive coverage of an area is the ideal, this is rarely feasible, and judgemental survey approaches are acceptable. However, the rationale for looking in some areas as opposed to others must be explicitly outlined in the final project report.

The visibility of archaeological resources varies with topography, vegetation cover and prior disturbance. In areas such as the boreal forest, the probability of finding surface remains of archaeological sites is low. Therefore, the archaeologist is expected to employ whatever field methodology is necessary to discover buried sites. A combination of examination of surface exposures and erosional faces and shovel testing is the norm. In those cases where high potential for deeply buried sites exists, the use of backhoes or similar machinery to create exposure is acceptable. Here, however, it must be remembered that the developer is responsible only for those areas to be impacted. Should the development be restricted to limited surface impact, it will not be necessary to test for sites below the level of impact, although obviously it is preferred.

A record of all survey traverses and subsurface tests must be incorporated within the report and submitted in accordance with the archaeological permit requirements. These should be plotted on large development area maps with scales such as 1:5,000 or 1:10,000 and under no circumstances exceeding 1:50,000. A photographic record of surface visibility conditions and exposure profiles also is required.

### 4.4.2 Sampling Survey Techniques

A wide variety of probabilistic sampling strategies is available for use on those projects where the scale of development makes 100% coverage totally unfeasible or where topographic complexity is such that predictive modelling for a judgemental strategy is difficult. In all cases where a probabilistic sampling strategy is employed, it must be first approved by the Archaeological Survey of Alberta. As with judgemental techniques, those guidelines relating to surface visibility,

recording and photography apply here. In addition, the final report must provide a detailed description of the strategy employed, the assumptions upon which it was based and an assessment of its presumed effectiveness.

### 4.4.3 Deep Testing and/or Construction Monitoring

In situations where it is suspected that geomorphological processes have buried archaeological resources below levels which can be reached with normal shovel testing procedures, requirements will be issued for deep testing or project monitoring. Requirements issued to developers will specify as precisely as possible where deep testing and/or monitoring are to take place within proposed impact zones. These requirements shall be fulfilled at the impact assessment stage of the HRIA/Mitigation process. Should a field archaeologist encounter a previously unsuspected circumstance where deep archaeological deposits are highly probable or known, communication shall be made immediately to the Assistant Director for Resource Management, with a request to modify the requirements for the ongoing impact assessment.

Monitoring can be an acceptable site discovery technique in impact assessments, as for example, during pipeline construction. Monitoring, as a mitigative measure, can be recommended as a means of ensuring site avoidance during construction phases. Monitoring will not be accepted as a recommended mitigation measure to discover sites, since consulting archaeologists are expected to evaluate all possible archaeological resources at the assessment stage. In all monitoring procedures, it is expected that the archaeologist will take appropriate observations and report accordingly.

## 4.5 SITE RECORDING AND ASSESSMENT PROCEDURES

The completion of the appropriate inventory forms and the assessment of all resources within the defined zone of development impact is a critical stage within the archaeological resources impact assessment process. These provide the necessary data crucial to the evaluation of site significance and subsequent mitigation recommendations. The most frequent cause for rejection of a report's recommendations or rejection of the impact assessment *per se* is insufficient site assessment.

Archaeological resources impact assessment reports recommending further assessment for a particular site are unacceptable.

4.5.1 Prehistoric Sites

All prehistoric sites are to be recorded in detail on an Archaeological Survey of Alberta Archaeological Site Inventory Data form (Appendix I). In addition, the completion of supplementary data forms tied to provincial research objectives may be required. It is anticipated that the supplementary data form will vary, depending upon the site type and region within which it occurs. In addition, a detailed map to scale and photographic documentation are required. The map must illustrate all site features and tests undertaken by the archaeologist.

Once evidence for a prehistoric site is located, it is mandatory that data be gathered on the parameters of site size (both horizontal and vertical), site integrity, site complexity, cultural content and material culture density. For such purposes, it will be necessary for the archaeologist to employ a combination of techniques, including surficial examination, shovel probes and controlled excavation. In some instances, remote sensing devices also may be useful. Because every site represents an unique circumstance, determination of the specific assessment strategy will have to be made for each particular case. The level of testing required of the archaeologist is considered to be a professionally based decision dependent upon site specific information requirements. The Archaeological Survey of Alberta will not set arbitrary standards for the intensity of testing; where there is any doubt about the intensity of testing, the Assistant Director, Research Section should be consulted.

It is realized that, of all archaeological impact assessment requirements, those associated with individual site assessment are the most difficult to plan and are the most subject to variable interpretation. Examples of the information required for a number of common site types and the expected infield treatment are provided below. Detailed, scale site maps are required in each instance, as are soil profiles.

Isolated find - Documentation of an isolated find requires sufficient shovel tests to verify the artifact's isolated context.

Four shovel probes surrounding the find and one placed immediately adjacent to it are viewed as the minimum.

Buried site, shallow deposition - The emphasis in site assessment should be placed on investigation of horizontal extent, stratigraphic complexity, material culture densities, preservation and, if possible, cultural content. This would require an unspecified number of shovel probes and, depending upon stratigraphic complexity, a controlled excavation unit(s).

Multicomponent, deeply buried site - Shovel probes may or may not be effective, depending on the depth of the site. Controlled excavation for the purposes of stratigraphic documentation is considered mandatory.

Stone circle sites - In the assessment of a stone circle site, emphasis is to be placed on the investigation of material culture densities, both within and between rings. A representative sample of rings must be tested for this purpose. A relatively detailed map of site surface features also is required for a site assessment programme.

Plowed field sites - Although horizontal extent is highly visible in a plowed field site, it is mandatory that such sites be tested to document presence or absence of materials below the plow zone. This must be carried out over the entire site area. Thus, a single shovel test is considered insufficient.

The preceding examples represent but a few of the most common sites encountered in an archaeological resources impact assessment, and it is again emphasized that the extent of site treatment is an independent, professionally based decision. It is further stressed that sufficient data must be collected so that an accurate characterization of the site may be made, resulting in an appropriate evaluation of significance and mitigation requirements.

In certain types of development projects, the proponent often has a

degree of flexibility that may allow for site avoidance. If a commitment to avoidance is made by the proponent, it is unnecessary for the archaeologist to assess in detail the avoided resource. This must be clearly stated in the final report. In the context of a linear project, such as a pipeline running through a stone circle site, it is not enough that the developer simply avoid the surface features. Rather, the new alignment through the site complex must also be given detailed assessment.

### 4.5.2 Historic Archaeological Sites

Historic archaeological sites most frequently are defined by highly visible feature concentrations. In the assessment of the resources, it is expected that such features will be tested to provide data on feature function, site chronology and site context. A site map, to scale, also is required. With one exception, historic archaeological sites should not be dealt with differently from prehistoric sites. The exception is the additional requirement to provide specific details on site ownership, origins, function and context through the historical record. Thus, it is considered mandatory that an attempt be made to gather these data from oral sources, archival sources and government records. In most cases, a minimal level of effort is considered to be a land titles search.

### 4.5.3 Historical Structures

The recording of historical structures within the development area or right-of-way is a mandatory obligation of the archaeologist in the conduct of an archaeological resources impact assessment, be it specified to the proponent or not. Failure to do so may result in unnecessary project delays for the development proponent. Because of the difficulties in operationally defining the term historical, all structures should be documented. Documentation should conform to inventory procedures of the Historic Sites Service.

An structure encountered is to be recorded on an Historic Sites Service inventory form (Appendix J). This is to be supplemented with a scaled sketch map including the dimensions of each structural unit and/or feature. Photographic documentation for each opposed quartering view of individual structural units is mandatory. As is the case with historic archaeological sites, the archaeologist must make an effort to document

the history of a structure through oral, archival and government records. Again, a land titles search is considered obligatory.

In some cases, a standing structure may have considerable associated archaeological remains. These remains should be treated in the fashion described previously for historic archaeological sites.

### 4.5.4 Palaeontological/Natural Feature Sites

The documentation of palaeontological sites or significant sites of natural features encountered in the course of an archaeological resources impact assessment is obligatory, whether specified as a responsibility of the proponent or not. In the case of palaeontological resources, the site location is to be recorded, an identification of the material (if possible) is to be made, and a photographic record of the exposure is to be kept. Collection of specimens should be limited to those remains obviously out of geologic context and to a sample sufficient to identify the find. Natural feature sites considered to be of outstanding value should be treated in a similar fashion with regard to site location documentation and photographic records. In both cases, a report of these sites must be made to the Assistant Director, Resource Management, Archaeological Survey of Alberta at the first possible opportunity.

If palaeontological resources are an expressed concern of Alberta Culture and Multiculturalism in its requirement letter to a development proponent, the investigator may be required to hold a palaeontological collection permit. In such cases, guidelines for palaeontological permit holders should be consulted.

## 4.6 FIELD COLLECTION PROCEDURES FOR ARCHAEOLOGICAL SPECIMENS

The collection of archaeological specimens during the course of an archaeological resources impact assessment is governed by both the context of the site and the subsequent recommendations for mitigation. Collections may result from excavation of controlled test units or various other subsurface probes, as well as the retrieval of surface exposed materials from natural (e.g., blow out) and disturbed (e.g., plowed) contexts. Excavated specimens are to be maintained, catalogued and submitted as an obligation of the permit holder. The circumstances

involving surface collection are more variable and require further elaboration.

Archaeological sites discovered during the course of an impact assessment may be evaluated as having a relatively low value and, hence, will not warrant further consideration. Alternatively, sites may be assessed as being significant and recommended for mitigation measures. If the former occurs, it is assumed that site recording will be the appropriate compensation for site destruction. Collection of surface materials during the recording stage also may be considered a component of site documentation in perpetuity. At those sites where further mitigation measures are being proposed, collection of surface materials should be viewed as a means to corroborate evidence for those recommendations. Therefore, collection of artifacts exposed at the surface of a site will be required for sites with widely differing significances

4.6.1 Collection of Surface Materials

Strategies of surface collection at archaeological sites during an impact assessment are guided by the subsequent evaluation and recommendations intended for that site, as noted previously. Where a site is not being recommended for further work, a "representative" sample of material is to be collected as a standard measure of mitigation. Representative is not necessarily meant in a statistical sense; it also may refer to a sample taken at the archaeologist's discretion in order to document assemblage variability in style, function and morphology. Sample size may be dictated by the requirements of assemblage variability. Where this is not appropriate, the number 30 should be used as a guideline. Sites with fewer that 30 specimens should have a total collection. Those with larger artifact assemblages must have a minimum sample of 30. Although systematic procedures are preferred, surface collection need not be carried out in such a way that the location of each specimen is mapped in detail, although such a technique is preferred.

Collection of materials at those sites which will be recommended for mitigation should be limited to a representative sample of specimens that documents assemblage variability. The sample should illustrate particular site qualities as they relate to defined research problems employed in the evaluation of significance. Under most circumstances, it

is recommended that diagnostic specimens, tools and exotic materials be collected as a matter of course. Because of the recommendations for further work, such specimens should be accurately plotted on a site map and infield markers should be left in their places or both. Once collected, these specimens form a part of the permanent archaeological record for the site, and all permit holder obligations apply.

In those contexts where only a portion of the site is being impacted by a development, it may be judicious to collect specimens from outside of the zone of impact to assist in site interpretation or to support recommendations for mitigation. This practice is left to the professional discretion of the archaeologist. Under certain circumstances, where the destruction of a segment of a site will effectively negate the value of the unaffected portion, Alberta Culture and Multiculturalism may require the proponent to undertake mitigation on the site as a whole.

### 4.6.2 Excavated Collections

All specimens recovered from subsurface tests during an archaeological resources impact assessment must be maintained. A record must be kept such that artifacts from any one unit may be distinguished. When test excavations result in the discovery of features or unique concentrations of materials and the archaeologist feels that future investigation would be impaired by collection at the assessment stage, the remains may be left *in situ*. This situation must be clearly documented in the final report.

### 4.6.3 Collection Specifications

Aside from establishing a minimum sample size of 30, there can be no *a priori* determination of what must or must not be collected. There are physical restraints on the final repository of collections at the Provincial Museum of Alberta, and these are reflected in submission guidelines. In particular, specimens of fire-broken rock, unmodified tipi ring cobbles or other such items that have little apparent analytic value after in-field documentation normally will not be accepted. If a case can be made for the conservation of such items in terms of research potential, exceptions may be made. Individual cases should be referred to the Assistant Director, Research Section, Archaeological Survey of Alberta.

All collected ecofacts (soil samples, etc.) should be treated for long-term storage prior to their submission to the Archaeological Survey of Alberta. They also must be accompanied by full documentation on collection procedures, rationale, content and expected results. Submissions failing to meet these specifications will not be accepted.

## 4.7 RECORD KEEPING

All holders of archaeological permits are required to keep a detailed documentation of field activities for submission to the Archaeological Survey of Alberta. These documents and materials are ancillary to the final report and may or may not be included therein. The following provides the list of records the Archaeological Survey of Alberta expects to receive:

1. field notes - a daily log of work undertaken, observations and similar items must be kept and submitted;
2. artifact documentation - a catalogue record of all collected specimens, including their provenience, must be maintained and submitted;
3. photographic documentation - all photographs taken during the course of the impact assessment must be catalogued as to content, and all photographs and catalogues must be submitted. When photographic transparencies (slides) form part of the record, a representative, catalogued sample must be submitted; and
4. site data - all site data including site forms, ancillary data forms, site maps and site profiles are to be documented and submitted.

The preceding materials form the permanent record of the project undertaken, and their submission is as critical as that of the artifact assemblage. Because of the importance field notes play in future use of the collected data, their recording and submission are a <u>mandatory</u> permit obligation.

## 4.8 FIELD EMERGENCIES AND SPECIAL CONDITIONS

The permit holder may be confronted with circumstances in which archaeological resources within the legal description for which his/her permit is valid are immediately threatened with disturbance or

destruction. On these occasions, the permit holder is to inform the Archaeological Survey of Alberta immediately of all circumstances associated with the situation. Section 7 of Alberta Regulation 124/79 stipulates that a permit holder, upon discovering that the integrity of a site is threatened, shall report that discovery to the Director, Archaeological Survey of Alberta, within 48 hours. Moreover, the Director may require the permit holder to locate such identified sites and to report any change of status to him within 48 hours.

4.8.1 Winter Impact Assessments

The standard against which archaeological fieldwork is measured is that of summer climatic conditions. Even though development scheduling may require a proponent to fund a winter archaeological resources impact assessment, normal archaeological standards will not be relaxed. In a policy statement of March 31, 1979, the Minister has formally supported this obligation. If winter work is necessary, the following guidelines are offered as the minimum to be expected of the archaeologist:

1. Areas with some previous subsurface disturbance and little or no vegetative ground cover should be free of snow cover when examined. This is to permit inspection of any and all subsurface exposures. Assessment should take place before snow has fallen or after it has melted. Alternatively, the existing snow cover may be removed in a manner that does not disturb the ground surface.
2. Areas with little or no previous disturbance and intact vegetative ground cover of a form that would impede surface scanning of the area need not have snow removed.
3. Only areas with moderate to high potential for yielding historical resources are expected to receive subsurface testing.
4. The same amount of subsurface testing that would take place during summer months must be accomplished in winter. Subsurface tests may be accomplished using a 25 cm (minimum diameter) auger, coal fires or similar means to thaw the ground, or in exceptional cases, backhoes or rippers. All frozen ground removed by this equipment must be sufficiently crumbled and examined to permit adequate exposure.

Those reports providing the results of winter impact assessment work must clearly illustrate surface visibility conditions with photographic

records. The employment of snow removal equipment such as graders or sweepers must be identified within the permit application under the section for methodology. If this has not been done, their use must be first approved by the Archaeological Survey of Alberta. A permit amendment will then be required.

4.8.2 Post-Construction Survey

Under exceptional conditions, the requirement for winter impact assessment may be waived if the developer agrees to undertake a post-construction survey of the development zone. This provision recognizes the fact that many linear developments, particularly those situated in northern Alberta, are of necessity scheduled during winter months to access areas dominated by muskeg terrain. It is also recognized that historical resources within the green zone of the province, most notably the northern green zones, rarely offer surficial indicators of historical resources. This inherent problem of limited resource visibility in the green zone is severely compounded by the onset of winter conditions, and as a result post-construction surveys may be more effective than pre-construction assessments with respect to discovery of below-ground resources. When developers are notified of impact assessment requirements, monitoring in specified locales may be required as a site discovery technique. If existing records demonstrate that a known significant site will be impacted by winter pipeline construction, a monitoring and/or mitigation program will be established.

The intent of a post-construction survey is to identify the presence of resources and to evaluate the extent of any impacts to these resources as a consequence of construction disturbance. Such a survey cannot result in recommendations for mitigative measures, with regard to the current development, should historical resources be identified. In the event of a future parallel project, however, the results of the post-construction survey may ultimately lead to mitigative measures being taken, but they cannot be applied retroactively to the initial development proposal which occasioned the survey. The decision to

proceed with the post-construction survey is at the discretion of the Historical Resources Division, and developers cannot elect to proceed with such a survey instead of a winter impact assessment until they have been formally advised via the referral review process, by the Assistant Deputy Minister or delegate.

Once a decision has been made, the developer will be required to enter into a contractual agreement with an approved archaeological consultant wherein the timing and terms of reference for the survey will be established and conveyed to the Archaeological Survey of Alberta. A clearance letter will then be issued for the development, thus the developer is advised to provide as much lead time as possible to ensure efficient processing of the project development referral.

The terms of reference will vary with the specific parameters of each development, but certain criteria can be outlined that should be met during the conduct of post-construction surveys. The timing of the audit must be within the onset of spring/summer conditions following winter construction. Every attempt should be made to conduct the survey before the establishment of renewed ground vegetation. In most cases, it will not be possible to specify in advance the exact date for the work, but it should be clearly understood that inspections should proceed as soon as possible once local conditions permit. The manner in which the developer reclaims the ROW can exercise a significant control over surface exposures and therefore the effectiveness of the post-construction survey. The newly exposed ROW will provide access to and exposures of landforms that may not have been examined during former assessments. Areas of both high and medium potential should therefore be evaluated.

Historical resources sites discovered within the ROW must be subject to further investigation by shovel testing to determine site size and to estimate degree of impact. It is important that this shovel testing program extend outside of the ROW being surveyed. Where feasible, it is recommended that the shovel testing be completed using a regular horizontal grid.

## 4.9 SUBMISSION REQUIREMENTS AND DEVELOPMENT CLEARANCE

Permit holders are expected to follow the highest standard of

professional conduct in carrying out their permit obligations and a developer's requirements during the course of an archaeological resources impact assessment. Under normal circumstances, a developer will not be provided with either a project clearance or conditional requirements for mitigation until the archaeologist has satisfactorily met his/her permit responsibilities. Often a developer may lack sufficient lead time for this to occur, and a set of procedures is provided to accommodate this situation.

Archaeological permit regulations specify three submission deadlines, barring exceptional circumstances. Acceptable site inventory forms are to be submitted within 90 days of the commencement of the field component of the archaeological resources impact assessment and prior to report submission. Site form data requirements are detailed in 7.2.4.1 of these guidelines and should be consulted. A final report on archaeological activities must be submitted no later than 180 days following termination of field operations. Guidelines for report content, data analysis and the like are provided in subsequent sections (see 4.9.3, 5.4, 6.4.2, 7.1). Finally, artifact collections, samples, field notes, drawings and all other ancillary data are to be submitted in acceptable form no later than 270 days following termination of field operations. Standards for these submissions are outlined in Sections 4.6 and 7.0. After these deadlines a permit holder becomes delinquent if submissions have not been made. It is required that these submissions precede any request for development clearance for a proponent.

### 4.9.1 Verbal Reports for Development Clearance

Frequently, a development proponent is unable to delay the development schedule for a period of time sufficient for the archaeologist to complete the submission requirements of the Archaeological Survey of Alberta. Consequently, a verbal approval system has been established to assist a developer with time constraints. Depending upon the nature of the project and its results, either a telephone report or a personal interview may be required. The decision as to which of these is applicable will be made by the Assistant Director, Resource Management Section, Archaeological Survey of Alberta.

That decision will normally be based upon the factors presented in the following Sections.

4.9.1.1 Telephone Verbal Reports

Telephone verbal reports are an acceptable means to request clearance for a developer when an archaeological resources impact assessment has been of a relatively limited duration (3 or less field days), when few sites (3 or less) have been recorded for which recommendation for further work is not being made, and when the acquisition of clearance is of some urgency for the developer. An archaeologist wishing to present a telephone report will undertake the following procedures:

1. The developer must make a request to the Assistant Director, Resource Management Section, Archaeological Survey of Alberta (431-2300), justifying the emergency nature of the situation. The Assistant Director may require the developer to substantiate the emergency.
2. Prior to the telephone report being presented to the regional archaeologist responsible for the project area, the Archaeological Survey of Alberta normally must have received: (a) a project map indicating surface traverses, test holes, site locations and all other relevant data; (b) completed site forms; (c) photographic coverage of the area examined; and (d) a written explanation and justification of the emergency. Exceptions to the submission requirements may be granted by the Assistant Director, Resource Management Section, dependent upon individual circumstances. This information can be sent via facsimile machine (403-432-1376), ATTN: Assistant Director, Resource Management Section, Archaeological Survey of Alberta.
3. During the telephone interview, the archaeologist must be prepared to answer all questions about the nature and conduct of the archaeological resources impact assessment. Only the permit holder may present such a report. The range of information categories that will be required is provided in Appendix K.

The use of the telephone report is discretionary and may be rejected by the Assistant Director, Resource Management Section, if a personal interview is thought necessary.

4.9.1.2 In-office Verbal Reports

In-office verbal reports are the standard response to a developer's emergency request for clearance or mitigation definition. In-office verbal reports are to be presented by the permit holder only. To request and provide a verbal report, the following procedures are to be adhered to:

1. A request for a verbal report is to be made by the developer to the Assistant Director, Resource Management Section, Archaeological Survey of Alberta. That request must justify the emergency situation; again the developer may be asked to clarify that context.
2. The verbal report will normally be taken by the regional archaeologist responsible for the area in which the development occurs. The contract archaeologist is responsible for arranging a mutually agreeable meeting time.
3. The archaeologist must bring to the meeting: (a) a project map indicating foot traverses, shovel tests, site locations and other relevant data; (b) completed site forms for all recorded sites; (c) photographic documentation of the area examined and any sites discovered; (d) samples of artifacts collected during the project; and (e) an interim letter report outlining the necessity of the emergency and summarizing recommendations for all sites discovered.
4. During the course of the interview, the archaeologist will be required to answer questions relating to the project and mitigation recommendations (Appendix K). Recommendations for further work must be presented as outlined in 4.10 of these guidelines.

Verbal approvals in advance of receipt of a final report will be issued only when the proponent is able to illustrate a genuine need. If possible, this need should be defined prior to project initiation in the permit application stage. Under no circumstance will a verbal report be granted without a written permit application and complete copies of all site forms.

4.9.2 Final Report - Short Format

For those archaeological resources impact assessment projects of short duration (3 or less field days) where resources are not recorded or where the resource base is limited to isolated finds or limited scatters,

an abbreviated final report format is acceptable. Exceptions to these conditions will not be granted. A limited scatter is here defined as any locale in which no more than ten (10) archaeological specimens are located in proximity to one another with a distance of greater than 30 m between this and any other find spot or site. Limited scatter, as a working definition, is restricted to those sites with high visibility from plowing or wind deflation. Isolated finds are single artifact recoveries.

The implementation of a final short report format is intended to expedite the approval process for development proponents while still providing a basic documentation of fieldwork undertaken. A short report is to conform to the following format and content guidelines. The applicability of a short report format for a final project submission should be discussed with the Assistant Director, Research Section, Archaeological Survey of Alberta prior to its transmittal, in order to ensure that it will be acceptable.

Title Page - includes the report title, the project name, the proponent's name, the permit number, the permit holder and the date of report preparation. Report titles and title page formats are to conform to the criteria identified in Appendix L.

Credit Sheet - includes acknowledgements for report authorship, fieldwork and technical support.

Abstract - to include a categorized summary of specific report data (Appendix L).

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Report Body - the report may be segmented into whatever subheadings the archaeologist feels appropriate. Minimal content must include

discussion of pre-field studies; the development and its impact; fields studies, including both inventory and assessment methodologies; and the results, including artifact analysis should it be required.

Recommendations - site by site recommendations and the justifications for each are to be provided as presented in Section 4.10.

References Cited - a list of all sources cited within the report.

Appendices - as required.

In addition to the preceding report content categories, the short format report must include all illustrative material associated with the standard final report. This includes map coverage, photographic documentation and all other relevant material outlined in Section 8(2)(a) of Alberta Regulation 124/79.

4.9.3 Final Report - Long Format

The final project report for the majority of archaeological resources impact assessment projects will require the long format. This report is to conform to all standards specified in Alberta Regulation 124/79, Section 8 and its interpretation herein. The maximum period of time before the report submission deadline is 180 days following termination of the field project.

The content of final reports for archaeological impact assessments will vary considerably, depending on the scale of project undertaken and results obtained. There are, nevertheless, basic data requirements that must be included. These data, and the typical format in which they should be presented, are provided below. Appropriate illustrative and support materials defined in Alberta Regulation 124/79 must be incorporated.

Title Page - includes the report title, the project name, the proponent name, the permit number, the permit holder and the date of

report preparation. Report title and title page format are to follow criteria identified in Appendix L.

Transmittal letter - an optional inclusion.

Credit Sheet - includes acknowledgements for report authorship, field research assistance, analytic and technical support and any other category of assistance to which the author wishes to grant credit.

Report Abstract - includes a categorized summary of specific report data. Guidelines for the preparation of this abstract are provided in Appendix L.

Management/Executive Summary - optional, and should not exceed 600 words in length.

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Introduction - must provide a detailed description of the development project, including a delineation of the land surface impacts it will create. The general context for the archaeological impact assessment is also outlined.

Background Data - must provide a discussion of the relevant environmental, prehistoric and historical data for the region in which the development occurs. It also is to include the results of the pre-field site file searches and any other associated data which will be required later for interpretive purposes or site evaluations.

Research Design - may not be required, depending on scope of project. Minimally, this section should include a discussion of the

identified research problems towards which data were being collected and the justification for any applied sampling strategies.

Methodology - must incorporate a detailed discussion of archaeological field methods, including sampling programmes, inventory and site assessment techniques, artifact recovery techniques and similar such data. Any specialized analytic techniques should also be discussed.

Results - must include a logically organized presentation of the results, including any analysis performed on collected data.

Recommendations - to consist of a series of site by site proposals in the format prescribed in Section 4.10.

References Cited - a list of all sources cited within the report.

Appendices - as necessary; may include data tables, special analysis, site form data, etc.

In the case of both short and long report formats, pagination is to be sequential. Referencing and bibliographic styles are to follow guidelines established by the Society for American Archaeology and practised in the journal, American Antiquity.

## 4.10 RECOMMENDATIONS

The recommendations resulting from an archaeological resources impact assessment are critical components of the cultural resource management process. The context and calibre of the recommendations will have a significant influence upon the disposition of the archaeological resources involved. Recommendations must be well supported, unambiguous and detailed. Recommendations are to be included in a separate section regardless of the report format employed.

Each recommendation is to be preceded by the site Borden number. A detailed site description, including horizontal and vertical dimensions,

cultural material content and density, and other relevant assessment data, is to be included. An estimation of the extent of potential impact and its effect on site integrity is mandatory. Finally, detailed justification for all mitigative recommendations is to be provided. It is emphasized that preferred mitigative alternatives are those of avoidance or some other protective means (e.g., capping). Scientific investigation is viewed as a final alternative, resorted to only when other action cannot be taken. Such investigation conducted on behalf of a development proponent is viewed as compensation for the eventual destruction of the resource.

Justifications for scientific investigation must be firmly founded on an evaluation of the potential a resource has to contribute to the knowledge of the past. Partial or complete destruction of a site is not a justification for investigation. Rather, the site must have the potential to contribute to an understanding of some substantive research problem which is defined for the project per se or which is incorporated within provincial research themes and objectives.

The amount of scientific investigation being recommended and the methodology to be employed must be directly correlated with the research problems for which the site has been deemed significant. For example, should the importance of a site lie in its potential to address the problem of intra-site activity delineation and patterning, a recommendation for small dispersed units would be inappropriate to gather such data. Rather, a block excavation or several block excavations of a size sufficient to investigate this problem with an appropriate recovery strategy (e.g., trowelling, piece plotting, etc.) is necessary. Permit holders are encouraged to discuss potential recommendations with Archaeological Survey of Alberta staff prior to their submission.

The key to formulating realistic recommendations which will be accepted by Archaeological Survey of Alberta staff lies in the provision of sufficient site assessment data. If the basic context of a site cannot be determined, its potential contribution to a knowledge of the past cannot be assessed and appropriate strategies for scientific investigation cannot be proposed. It must be emphasized that site assessment within an archaeological resources impact assessment programme is an absolutely critical stage of investigation and reporting.

## 4.11 EVALUATING THE SIGNIFICANCE OF ARCHAEOLOGICAL SITES

As the archaeological literature of the last two decades eloquently attests, evaluating the significance of archaeological sites is one of the most important yet difficult steps in the management of historical resources. Assigning a significance value to an archaeological site is a creative process that must take place in a pragmatic context. That context involves the scale of impact anticipated to occur, the capacity of the proponent to support mitigative measures, and the public good that will be served by proposed mitigative measures.

As a matter of policy, the Archaeological Survey of Alberta prefers to develop flexible measures for the evaluation of significance, tailored as closely as possible to the particular development project in question. Broad, highly formulaic approaches are usually inappropriate for these reasons. The following basic guidelines should be followed in evaluating archaeological sites. The first order of priority is to assess the physical properties of the site. Such assessment should involve fundamental archaeological concepts of space, time and form, as these relate to depth of deposits and stratigraphic devlopment, the spatial extent of the site, its location, and the density and variety of artifacts and features associated with the site. It is in this sphere that the most objective kinds of evaluation can be made.

Treatment of the scientific significance of a site, the second order of priority, should build upon the evaluation of the physical properties just mentioned in assessing the research potential a site holds. This is clearly a far more subjective, though no less important, sphere of evaluation, since the kinds of questions we ask of archaeological sites vary from investigator to investigator, and as theoretical perspectives change. The key step involved in the estimation of scientific significance--and it is far too frequently overlooked--is that of developing arguments that warrant the position being adopted. Statements to the effect that a site has significant scientific research potential simply because the investigator says so are of limited use to archaeological resource managers, and do little to convince proponents of the merits of an evaluation or the mitigation arising from it. Statements that give a clear indication of how the particular physical

properties of a site or population of sites can be applied to important anthropological problems (in both a cultural historical and processual sense) are what is required.

The social significance of a site, including its inherent value to a particular group of people as well as its interpretive and educational potential, can also be addressed. It should be recognized, however, that the best expertise for an assessment of interpretive potential will often reside with a branch of the Historical Resources Division.

The accumulated experience of historical resource management in Alberta shows that evaluation of significance for most impact assessment work is reasonably straightforward, and ought not to occasion extraordinary measures. Archaeological Survey of Alberta staff are always available for consultation about evaluations, and permit holders can at any time consult The Master Plan for the Protection and Development of Prehistoric and Historic Resources within Alberta, published by Alberta Culture and Multiculturalism. This document outlines the key thematic categories for prehistoric and historic archaeological sites in Alberta; it embodies the government sanctioned plan for historical resource management in this province.

Larger projects may very well have their own special needs, and the Archaeological Survey of Alberta will assist proponents in these situations by providing specially designed signficance models or schemes, tailored to particular projects. Two examples of these are provided in Appendices M and N. These examples can also provide permit holders some insights into the kinds of information Archaeological Survey of Alberta staff use in their own evaluations of site signficance, in these cases for the sites in the boreal forest and for Plains tipi ring sites. Permit holders interested in developing an evaluative scheme for a large development project are well advised to confer with staff of the Research Section, Archaeological Survey of Alberta. In the final report being prepared for a major project, a detailed discussion of the significance scheme should precede the recommendations section.

## 5.0 MITIGATION STUDIES

The defined purposes of archaeological resources impact assessments are to identify and assess the resource base, to assess its value with regard to a potential contribution to knowledge, to assess the significance of a proposed development impact on the resource base and to recommend a course of action that is in the best interests of archaeological conservation. That course of action is termed mitigation. The mitigative stage represents the final step, exclusive of analysis and reporting, of an archaeological resources impact assessment where potentially significant resources are present.

## 5.1 MITIGATION PHILOSOPHY

Mitigation refers to a moderation or alleviation of potential impact. In cultural resource management studies within Alberta, it has become virtually synonymous with the recommendation for scientific investigation following an impact assessment. It is emphasized here that this form of mitigation is but one alternative; avoidance and/or other means of preservation through development planning or redesign are preferred options for the Archaeological Survey of Alberta. Only when all other possibilities have been explored and rejected will recommendations for further archaeological work be considered.

When a developer has no option but to impact, either partially or wholly, a significant archaeological site, the Minister may order that individual to undertake any archaeological measures considered necessary to conserve scientific information. Such measures are considered to be compensation to the people of Alberta for the partial loss of the physical manifestations of their heritage. These archaeological measures involve problem-oriented scientific investigation designed for maximum efficiency and effectiveness in the recovery of archaeological information. The extent of investigation, the problems to be addressed and the recovery procedures will have been determined on the basis of the archaeological resources impact assessment. In turn, a letter of requirement providing these details to the development proponent or his agent will be issued by the Assistant Deputy Minister, Historical

Resources Division, Alberta Culture and Multiculturalism. The archaeologist carrying out the necessary work is not at liberty to alter those requirements without the written approval of the Assistant Deputy Minister.

The Archaeological Survey of Alberta emphasizes that a development proponent's responsibility is neither more nor less than that defined within the letter of requirement. While archaeologists are encouraged to pursue their own research problems and publish the results of mitigative studies, extraneous research associated with personal interest lies beyond the legal obligation of a proponent. If an archaeologist has questions regarding the specified requirements of a development proponent, he/she should direct those queries to the Director, Archaeological Survey of Alberta.

## 5.2 RESEARCH DESIGN

A research design for scientific investigation in the mitigation stage of the regulatory process must be developed around the research problem orientation identified in the impact assessment recommendations (see 4.10). It is this problem orientation which has provided the resource with a value and justified mitigation concerns. Other problems also may be defined provided that they do not necessitate additional requirements, in either the field or the laboratory, of the developer. The latter, of course, is a condition that may be altered upon agreement between the proponent and the archaeologist.

The formulation and drafting of a mitigation project research design is to follow guidelines established in Section 4.3. The problem statement is to be clearly documented in the permit application. The appropriate data recovery techniques and analytical approaches are to be described. Finally, operational considerations, including personnel requirements, are to be detailed.

In some mitigation projects, a general research design for data recovery at several sites may be applicable. For example, the excavation of several small lithic scatters in an oil sands lease area could be tied to the investigation of lithic technological strategies over time or space. In such a hypothetical case, the problem would require

examination of several sites and provide what otherwise might be considered to be a marginal archaeological resource with a definite value. In this instance, individual site mitigation strategies must be justified in light of the larger focus.

The formal drafting and approval of a research design may not always be possible prior to initiation of fieldwork. This statement recognizes the urgency of scheduling which some developers may face in completing an impact assessment and mitigative programme. Since mitigation recommendations must be justified within the context of a site's research potential, the research focus will have been developed at the recommendation stage. This focus must be fully elaborated in the final report along with the associated field and analytic treatments employed.

## 5.3 FIELD CONDUCT AND PROCEDURES

Field methodologies and data recovery techniques within the research design will be tailored to the data requirements of the problems to be solved. Because of this, there is little freedom for the archaeologist to alter the approach described in the permit application. If the archaeologist finds that the specified field methodology is not producing the desired result and that an alternative strategy would be better suited, then he or she should contact the staff archaeologist responsible for the project development area. Reports on mitigation projects where field methodologies vary considerably from those proposed in the research design as specified on the permit application, may be considered unacceptable if prior consultation has not occurred.

A minimum standard for field procedures is not given here. Rather, it is stressed that such procedures are to meet the basic requirements of the research problem. Data collection, within normal contexts, is to be carried out through either systematic excavation or surface collection. In these situations, all specimens are to be assigned a provenience more specific than site level. Where unsystematic collection strategies have been approved (e.g., grab samples), provenience may be at the site level. A detailed account of field methodologies and an assessment of their effectiveness is to be included in the final report.

Professional conduct and standards in the field are expected of the archaeologist and crew. The permit holder is ethically responsible for the actions of all individuals under his/her supervision while engaged in activities associated with the permitted project.

Investigations of archaeological sites normally entail intensive data collection through scientific excavation. Detailed documentation of all fieldwork is mandatory for the permit holder. This includes field notes, appropriate map coverage, feature plan views, profile drawings, photographic documentation and the preparation of any other material regarded as necessary for an accurate delineation of field activities and their results.

Site reclamation, including the backfilling of excavation units, is recommended in those circumstances where site destruction is not imminent. As a working rule, four weeks is to be taken as the maximum length of time excavations may be left open following fieldwork completion. This guideline ensures against unnecessary site disturbance in those cases where developments may be cancelled or later plan changes allow for site avoidance.

## 5.4 MITIGATION REPORTS

The final reporting requirements for mitigation projects requiring scientific investigation are detailed in Alberta Regulation 124/79, Section 8. Final reports are due no later than 180 days following termination of the field project unless otherwise authorized through a permit amendment. Mitigation reports on scientific investigations, in most cases, represent the sole documentation and interpretation of archaeological sites. As such, they differ from archaeological impact assessment reports in the degree of analysis and interpretation.

Because of the potentially varied nature of mitigation projects, a standard report format is more difficult to define than for the archaeological impact assessment report. Minimum content requirements do apply, however, and these are defined below.

Title Page - to include the report title, project name, proponent name, permit number, permit holder and date of submission. Report title and title page format guidelines are found in Appendix L.

Transmittal Letter - optional inclusion.

Credit Sheet - to include report acknowledgements for authorship, field research assistance, analytical and technical support, and all other assistance the permit holder wishes to credit.

Report Abstract - to include a categorized summary of specific report data. Guidelines for abstract preparation are found in Appendix L.

Management/Executive Summary - optional inclusion not to exceed 600 words in length.

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Introduction - to include the project background, the nature of the development and associated impact, the previous archaeological resources impact assessment overview and the objectives of the mitigation project and report.

Background Information - to include a relevant overview of the study area and any other data felt necessary to introduce the mitigation project.

Research Design - to include a discussion of the research problems for which mitigation was recommended in addition to site specific mitigation treatments and appropriate methodologies.

Field Investigation Results - to provide a detailed description of field strategies and the results.

Data Analyses - all data must be analysed and reported to the minimum standard defined within Section 7.1 of these guidelines.

Interpretations and Problem Resolution - the results of both the field investigations and analysis are to be interpreted in terms of the research problem(s) under investigation. The degree to which the research problem has been resolved must also be addressed.

Assessment and Conclusions - to provide an overall assessment of the project, including successes and failures. Any recommendations for future work of a similar nature are to be identified here.

References Cited - to follow the American Antiquity format established by the Society for American Archaeology.

Appendices - to be included as needed. Detailed technical analyses or data tabulations are normally appended.

Although the preceding report format is optional, the defined content is not. For ease of review, it is also recommended that tables and illustrations be integrated into the report body whenever possible.

### 5.4.1 Combined Archaeological Resources Impact Assessment and Mitigation Reports

In those contexts where the development proponent has defined a measure of urgency and mitigation is to precede the submission of an impact assessment report, the archaeologist may incorporate both the impact assessment report and the final report on mitigation results into a single volume. The Archaeological Survey of Alberta views this integration as the exception, not the norm. It is incorporated here for the benefit of the development proponent. The circumstances for which this report integration is allowable and the guidelines to be met are defined below.

1. The urgency of the development must be documented for the impact assessment stage and all requirements of the in-office verbal report must be met (4.9.1.2).
2. A written application to amend the impact assessment permit to incorporate all subsequent mitigation must be made, and the permit amendment must be authorized.
3. The reporting requirements of the archaeological resources impact assessment and those of mitigation must be clearly separated. The report format may include a single introduction and background information section. The report title must identify the combined nature of the report.
4. Only the archaeological resources impact assessment permit holder may carry out mitigation and author the final report. For those situations in which some other individual is to carry out mitigation, separate permits and separate reports are required.

Again, it is emphasized that combined reports are the exception and not standard procedures. The acceptance of a combined report is contingent upon a defined emergency in which mitigation will precede the submission of an impact assessment report and the successful application for a permit amendment to include mitigation. Abuse of the combined report format will lead to cessation of the practice.

## 5.5 SUBMISSION REQUIREMENTS AND DEVELOPMENT CLEARANCE

Under normal circumstances, written clearance for a development to proceed will not be provided to the proponent until a written final report has been submitted and accepted by the Archaeological Survey of Alberta. An interim letter of clearance may be provided, however, if the proponent wishes to initiate development prior to preparation of the final report. This situation will arise only when the period between fieldwork termination and development initiation is totally insufficient for the permit holder to meet his or her obligations. Permit holders should be aware that the maximum time for report preparation is considered to be 180 days, although a longer period of time may be considered, depending on the scale and nature of the project.

Where a developer wishes to have immediate permission to proceed, the archaeologist is to inform the Archaeological Survey of Alberta by letter that all field requirements as specified in the permit application have been met. If any variation, regardless of scale, has occurred, it must be documented and explained. Finally, the fact that the proponent wishes immediate notification must also be noted. Only under extreme circumstances will notification of work completion be accepted over the telephone for the purposes of issuing an interim clearance. This must be followed within 24 hours by a letter.

Mitigation and the mitigation requirements specified by the Assistant Deputy Minister are the final stage in the application of the Historical Resources Act with regard to a specific development project, barring a decision to designate the site. Recommendations for further work will be entertained only if the proposed impact by the proponent changes or if, during the course of the mitigative investigations, new and highly significant data are revealed which alter the first site evaluation. In the latter case, it is the Archaeological Survey of Alberta's general policy to attempt to resolve the problem without further requirements of the proponent. This might result in the issuance of a contract to the archaeologist to continue mitigation or the mitigation might be completed by Archaeological Survey of Alberta staff. Only in rare circumstances will a proponent be required to undertake additional work. Even more rarely will development restrictions be issued. This situation underscores the need for detailed site assessment in the archaeological resources impact assessment.